TELEFUNKEN SERVICE

AUDIOVISION
AUDIOVISION
AUDIOVISUEL

CAMERARECORDER
VIDEO MOVIE A 2000 P / VM 4100

Druck-Nr. 319 493 343

V08312

STROMLAUFPLÄNE · SCHEMATIC DIAGRAMS

Änderungen vorbehalten · Subject to modifications

Service-Hinweise

Das Laufwerk, die Videoköpfe und alle Bandführungen benötigen nach ca. 500 Betriebsstunden periodische Reinigung und Pflege, um die normale Leistungsfähigkeit zu erhalten. Die nachstehenden Service-Hinweise sind als Kurzanleitung gedacht.

Pflege und Wartung

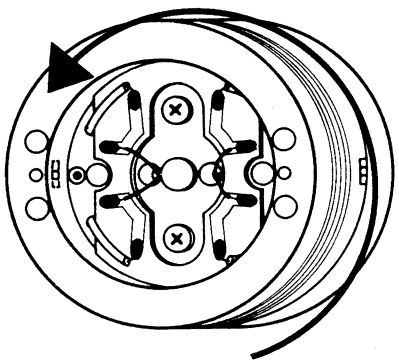
Die folgenden Teile benötigen eine periodische Reinigung und Fettung, um ihre normale Leistungsfähigkeit zu erhalten:

A. Trommelsystem

1. Die oberen und unteren Trommeln, der Löschkopf, die zwei Bandführungen und die zwei Führungsrollen müssen gelegentlich gereinigt werden. Da diese Teile direkten Kontakt mit dem Video-Band haben, nehmen sie leicht Staub an.

   Vorsicht:

   Wenn die Video-Köpfe auf der Kopftrommel gereinigt werden, sind sie nicht in senkrechter Richtung zu bearbeiten. Mit möglichst sanfter Hin- und Rückbewegung in Richtung des Bandweges die Trommel säubern, da die Köpfe aus Ferrit hergestellt sind und leicht zerbrechen können.
2. Zum Reinigen ausschließlich ein staubfreies Ledertuch benutzen, welches mit reinem Alkohol angefeuchtet wurde.
3. Nachdem die Teile mit Alkohol gereinigt wurden, sollten sie einige Zeit trocknen, bevor das Cassetten-Band benutzt wird, da der Alkohol das Band beschädigen könnte.



B. Andruckrolle und Capstan-Welle

1. Staub an der Andruckrolle oder der Capstan-Welle kann deren Funktionsfähigkeit beeinträchtigen.
2. Die Oberfläche der Andruckrolle und die Capstan-Welle sollten mit einer milden Waschmittellösung und einem staubfreien Tuch gereinigt werden.

   Achtung:

   Alkohol kann Gummi angreifen.

Service Instructions

The mechanism, the video heads and all tape guides require periodic cleaning and attention after approximately 500 operating hours to maintain the normal performance capability. The adjacent Service-Notes are to be regarded as abridged instructions.

Cleaning and maintenance

The following parts require a periodic cleaning and lubrication to retain their normal performance.

A. Drum system

1. Clean the upper and lower drums, the full erase head, the two guide poles and the two guide rollers occasionally. Since these parts make direct contact with the video tape they tend to collect dust.

   Caution:

   When cleaning the video heads on the upper drum, DO NOT clean them with vertical strokes. Use only a gentle to and fro movement in the direction of the tape travel. Take great care as the heads are made of ferrite and are very fragile.
2. For cleaning use a chamois leather moistened with pure isopropyl alcohol.
3. After cleaning with alcohol, allow the parts to dry before using a cassette tape. Alcohol can damage the tape.

Reinigung der Kopftrommel
Head drum cleaning

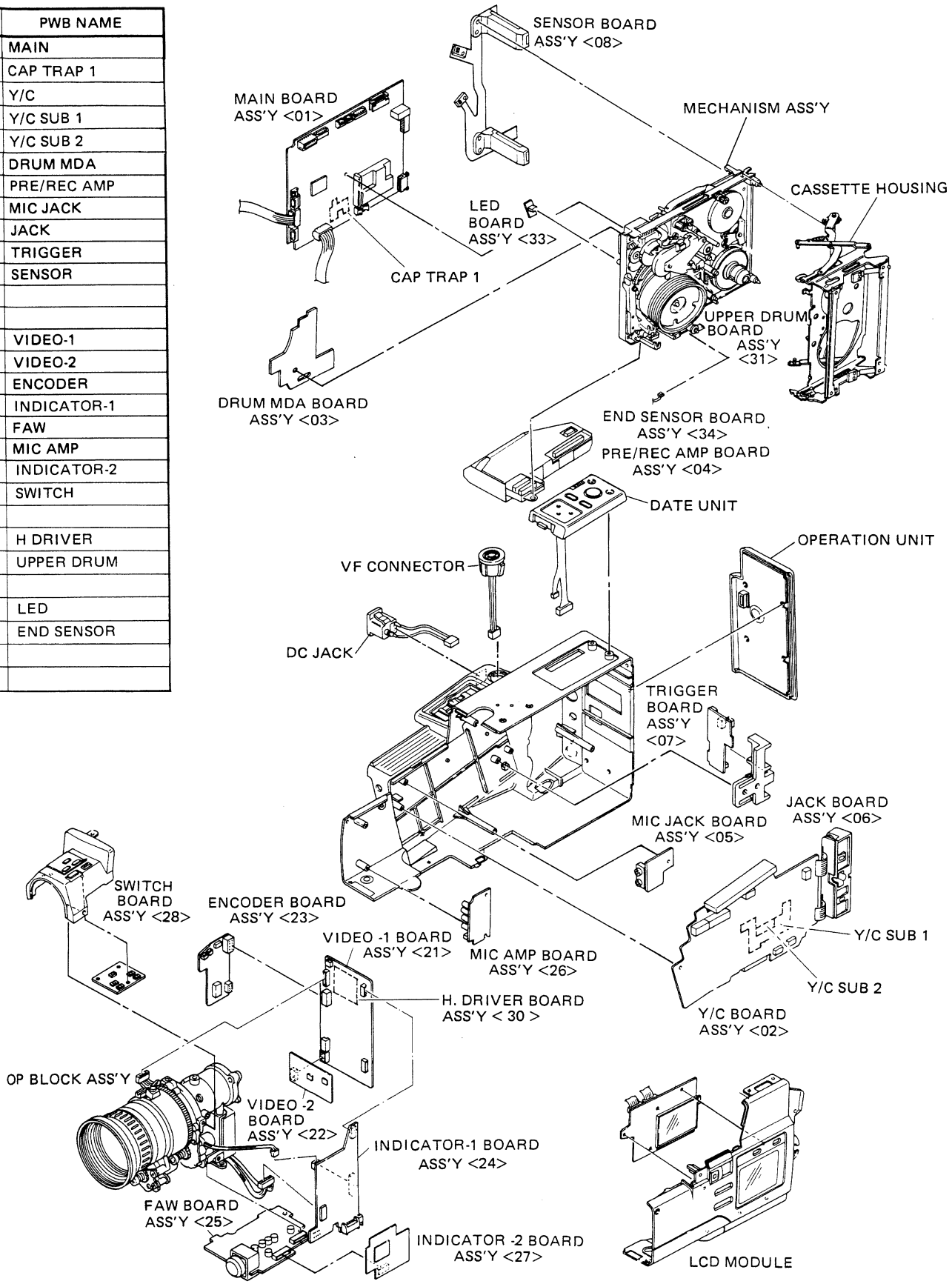
B. Pinch roller and capstan shaft

1. Dust on the pinch roller or the capstan shaft can impair their operation.
2. Clean the pinch roller surface and the capstan shaft with a mild detergent solution and a lint-free cloth.

   Note:

   Alcohol can cause rubber to deteriorate.

No.	PWB NAME
01	MAIN
	CAP TRAP 1
02	Y/C
	Y/C SUB 1
	Y/C SUB 2
03	DRUM MDA
04	PRE/REC AMP
05	MIC JACK
06	JACK
07	TRIGGER
08	SENSOR
21	VIDEO-1
22	VIDEO-2
23	ENCODER
24	INDICATOR-1
25	FAW
26	MIC AMP
27	INDICATOR-2
28	SWITCH
30	H DRIVER
31	UPPER DRUM
33	LED
34	END SENSOR



Lageplan der Leiterplatten - Position plan of P.C.B.'s

NAME		L
	IC	
A	AFZ72F45A1	8D
	AFZ74A001X1	7A
	AFZ74A002X1	7A
	AN2275S	5D
	AN2276S	5D
	AN3212S	1C
	AN3323S	1C
	AN3592S	2F
	AN6308S	1A
	AN8009	6E
B	BA10324F	1B
	BA226F	1A
	BA6452F	7C
	BA6993F	1A
	BA7131F	1A
	BA7258AK	4A
	BA7288K	4A
	BA7600K	4A
	BA7601K	4A
	BA7606F	8B
	BA7751AF	7C
	BA7757BK	2B
	BA7757K	2B
	BU3721K	4A
	BU3767K	4A
	BU4011BF	1B
	BU4584BF	1B
C	CP1088G	1D
	CP1089G	1D
H	HD6305Z0F-CV05	3B
	H8B7101	1F
	H8D7046	4C
	H8D7047	3C
	H8D7048	2C
	H8D7051A	8A
	H8D7091A	5E
	H8D7091B	3E
	H8D7098	3C
	H8D7102	3E
	H8D7103	3E
I	IR3702N1	1B
L	LA7213	4D
	LA7316	7C
M	MB671458	3B
	MC8089A	3D
	MC8180B	1E
	MC8181D	1E
	MN12821(QR)	6F
	MN3106S	1A
	MSM6829MS	1A
	MSM6830	6A
	MSM6831	6A
	MSM6846MS	1A
	MSM6847MS	1A
	MSM6984MS	1A
	MSM6964-3MS-WK	1A
	MSM6985MS	1A
	MSM6989MS	1A
	M50966-150FP	8E
	M51648FP	6B
	M51799FP	5A
	M51798FP	5A
	M52074FP	3F
	M5236ML	3A
	M52410FP	6A
	M52434FP	5A
	M5282FP	1A
	M54543ASL	5B
	M54543ASL-A	5B
	M54641FP	2E
	M5M5256FP-10L	5B
N	NJM2233AM	1A
	NJM2244M	1A
	NJM2245M	1A
	NJM2246M	1A
	NJM2904E	1A
	NJM4560M	8C
S	S-81250AG	2A
	S-81252HG	2A
	S8054HN	4B
T	TC4S69F	6D
	TC4S71F	6D
	TC4S81F	6D
	TC7S32F	6D
	THE175A	4D
	THE191A	5C
	THE245	8A
	THE326A	7F
	TME234	6C
	TME336	4C
U	UPC2370GH	2D
	UPC2371GH	2D
	UPC324G2	1B
	UPD4013BG	7E
	UPD4538BG	8B
	UPD6147G	6A
	UPD6148GS	7C
	UPD9319BGC	4F
V	VC2031MP	7B
	VC2038	4E
	VC2039	7D
	VC2041	7C
	VC2043	7D
	VC2044	7D
	VC2073	7D
	VC2079B	5B
	VC2081	3B
	VC2085	5F
	VC2089	8E
	VC5026G	6A
	28VT03	5C
	6VT07	3E
	6VT08	3E
TRANSISTOR		
D	DTA124EU	1G
	DTA144EU	1G
	DTC124EU	1G
	DTC124XU	1G
	DTC144EK	1G
	DTC144ES	7G
	DTC144EU	1G
	DTC144WK	1G
	DTC144WU	1G
F	FMC2	5G
	FMG1	6G
	FMG2	6G
	FMQ1	6G
	FMS2	2H
	FMU1	3H
	FMW1	2H
	FMW3	2H
2SA	2SA1036K	1G
	2SA1532	1G
	2SA1576	1G
	2SA1577	1G
	2SA1610	1G
	2SA1611	1G
	2SA881R	7G
2SB	2SB1009	7G
	2SB1218	1G
	2SB624	1G
	2SB798	1H
2SC	2SC2412K	1G
	2SC3931	1G
	2SC3936	1G
	2SC4081	1G
	2SC4098	1G
	2SC4099	1G
	2SC4181	1G
	2SC4176	1G
	2SC4177	1G
	2SC4178	1G
2SD	2SD1819	1G
2SJ	2SJ146	2G
2SK	2SK198	3G
	2SK198P,G	3G
	2SK620	2G
	2SK665	2G
3SK	3SK179	4G
DIODE		
D	DAN202U	1I
	DAP202K	2I
	DAP202U	2I
	DAP209S	6J
	DA204U	6I
E	ERA81-004	4I
F	FMN1	2J
I	IMN10	3J
M	MA141K	5J
	MA141WA	2I
	MA141WK	1I
	MA143	6I
	MA184	5I
	MA185	5I
	MA3075H	1J
	MA704	5I
	MA714	8I
	MA716	7I
R	RB451F	1I
	RD5.6EB2	4J
	RD6.8EB1	4J
	RD6.8EB2	4J
	RD7.5M	1J
	RD7.5M-T1B2	1J
	RD7.5MB3	1J
	RD8.2EB2	4J
	RD8.2EBS	4J
	RD8.2MB2	1J
	RLZ5.6B	7J
	RLZ8.2B	7J
	1SS133	5I

Halbleiter- Anschlüsse - Semiconductor shapes

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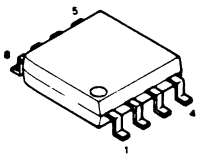
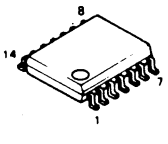
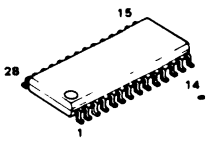
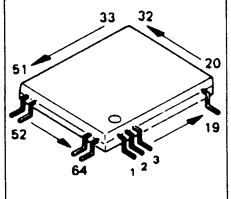
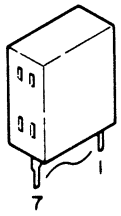
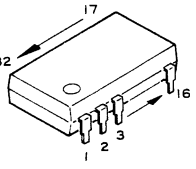
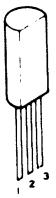
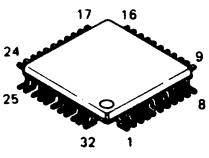
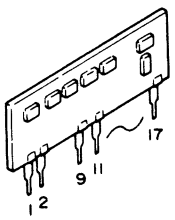
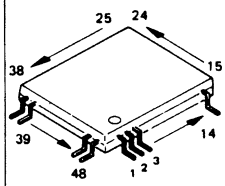
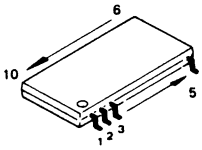
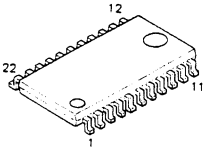
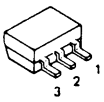
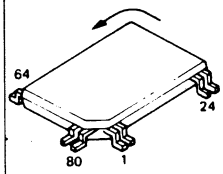
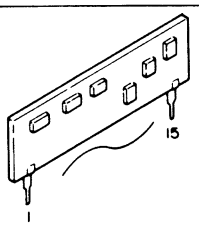
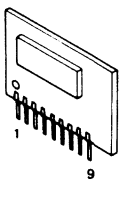
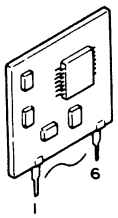
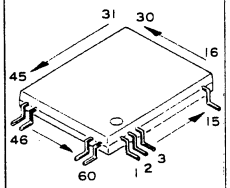
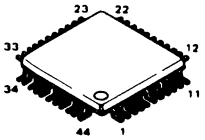
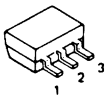
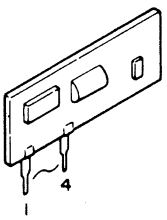
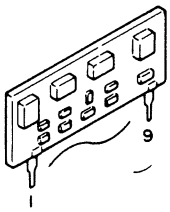
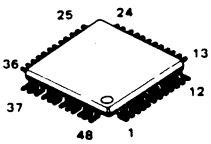
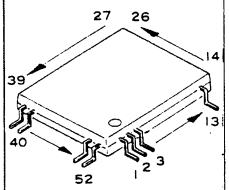
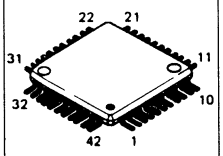
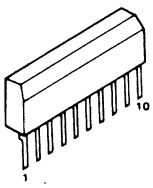
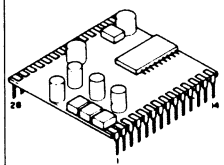
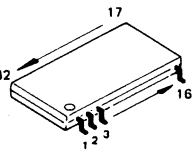
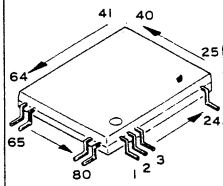
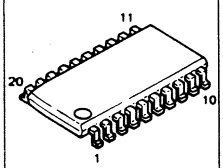
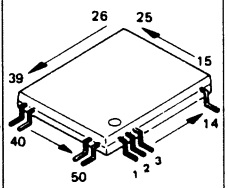
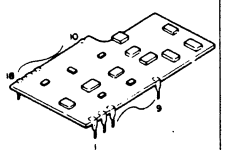
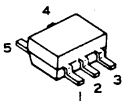
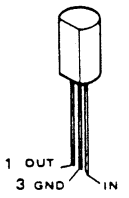
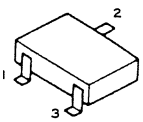
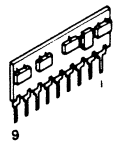
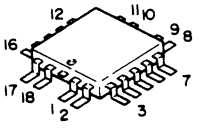
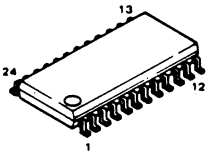
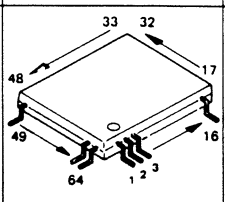
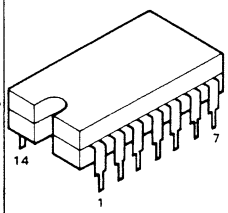
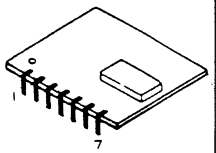
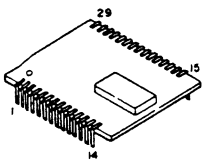
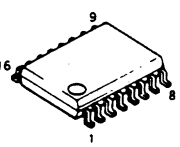
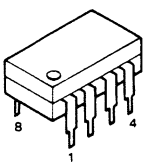
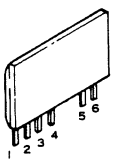
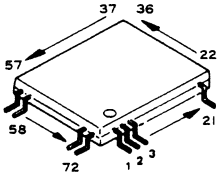
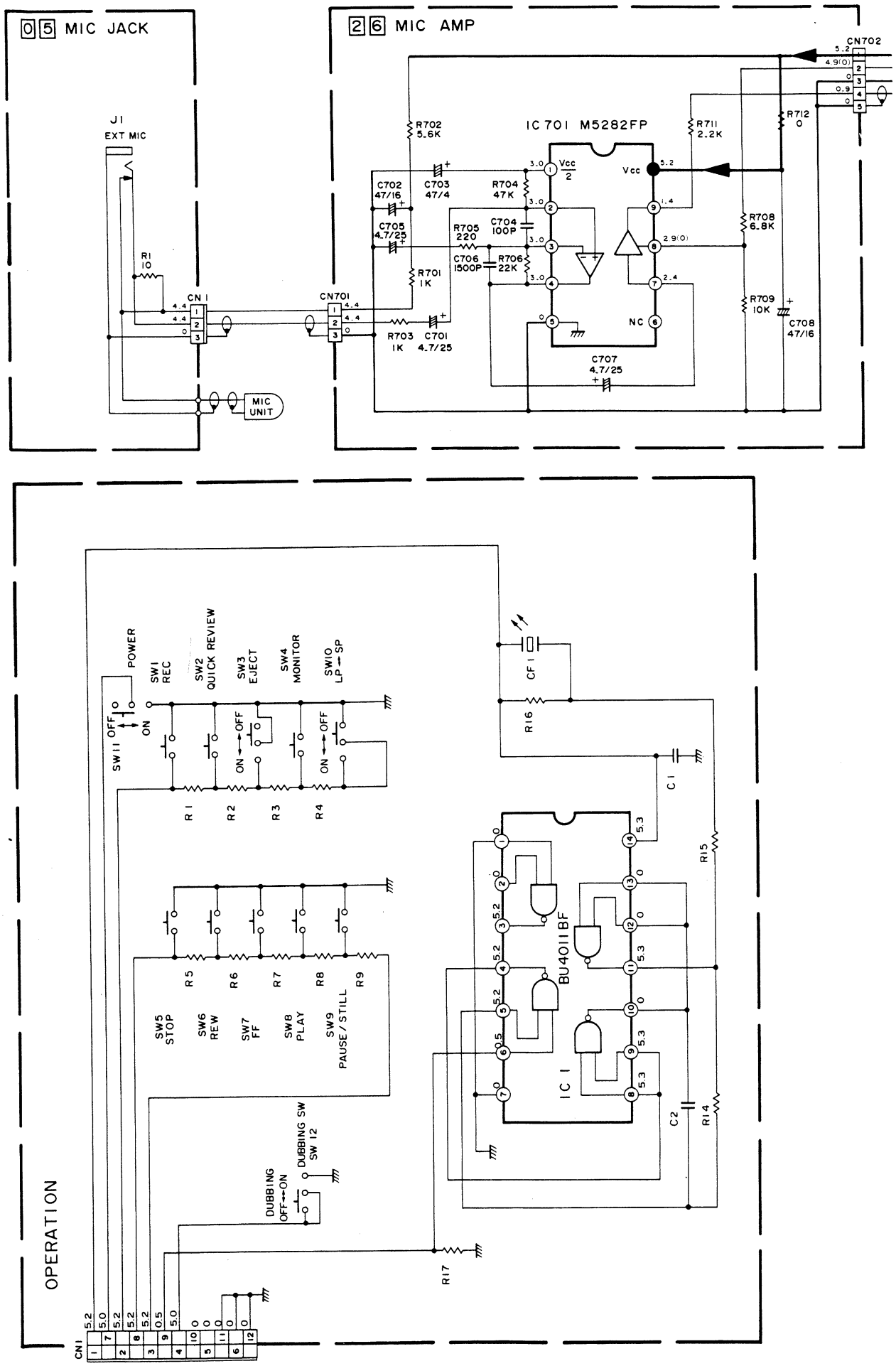
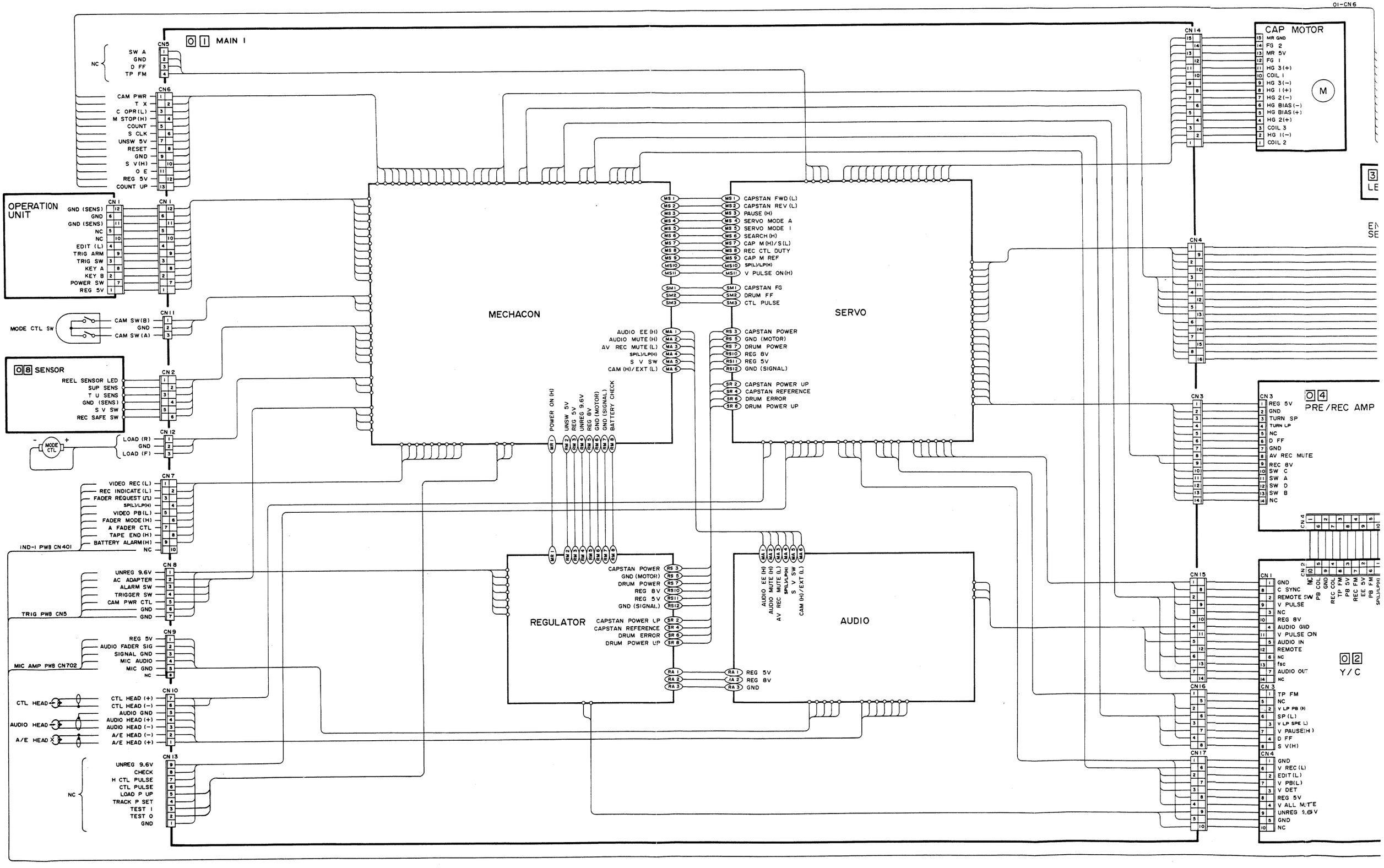
1						
2						
3						
4						
5						
6						
7						
8						



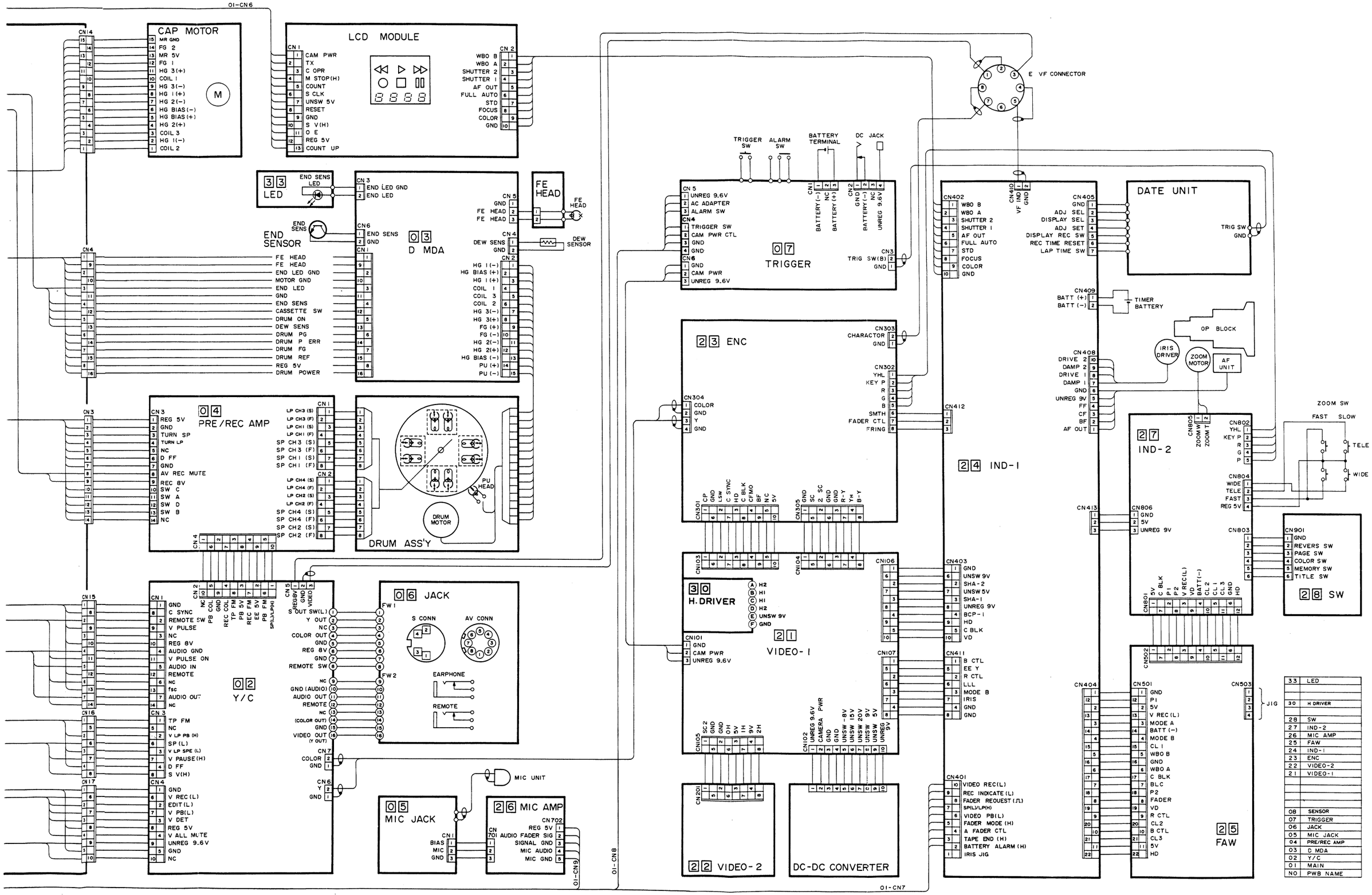
Mikrofon - Microphone

Bedienteil - Operation

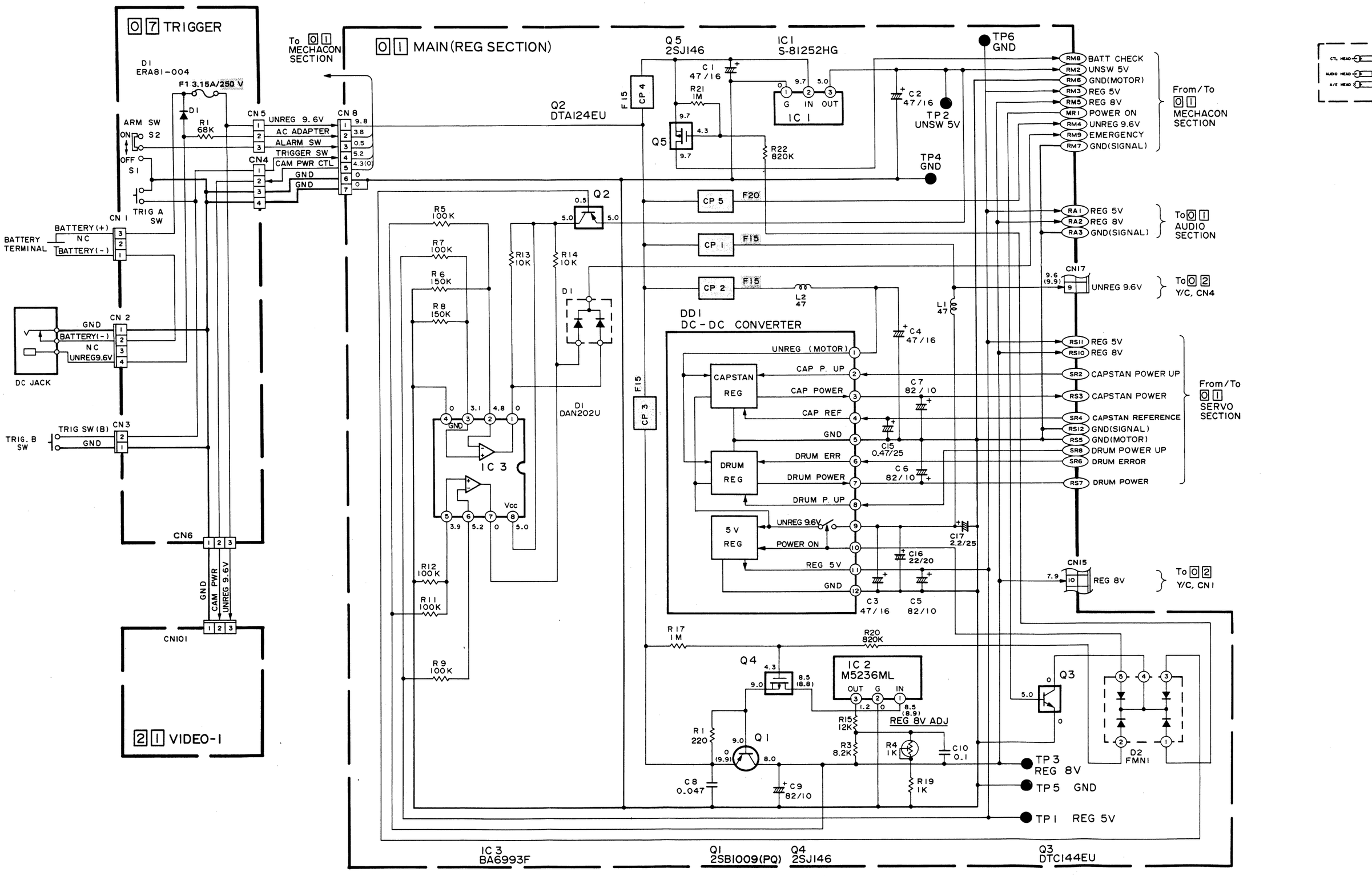
01-CN6



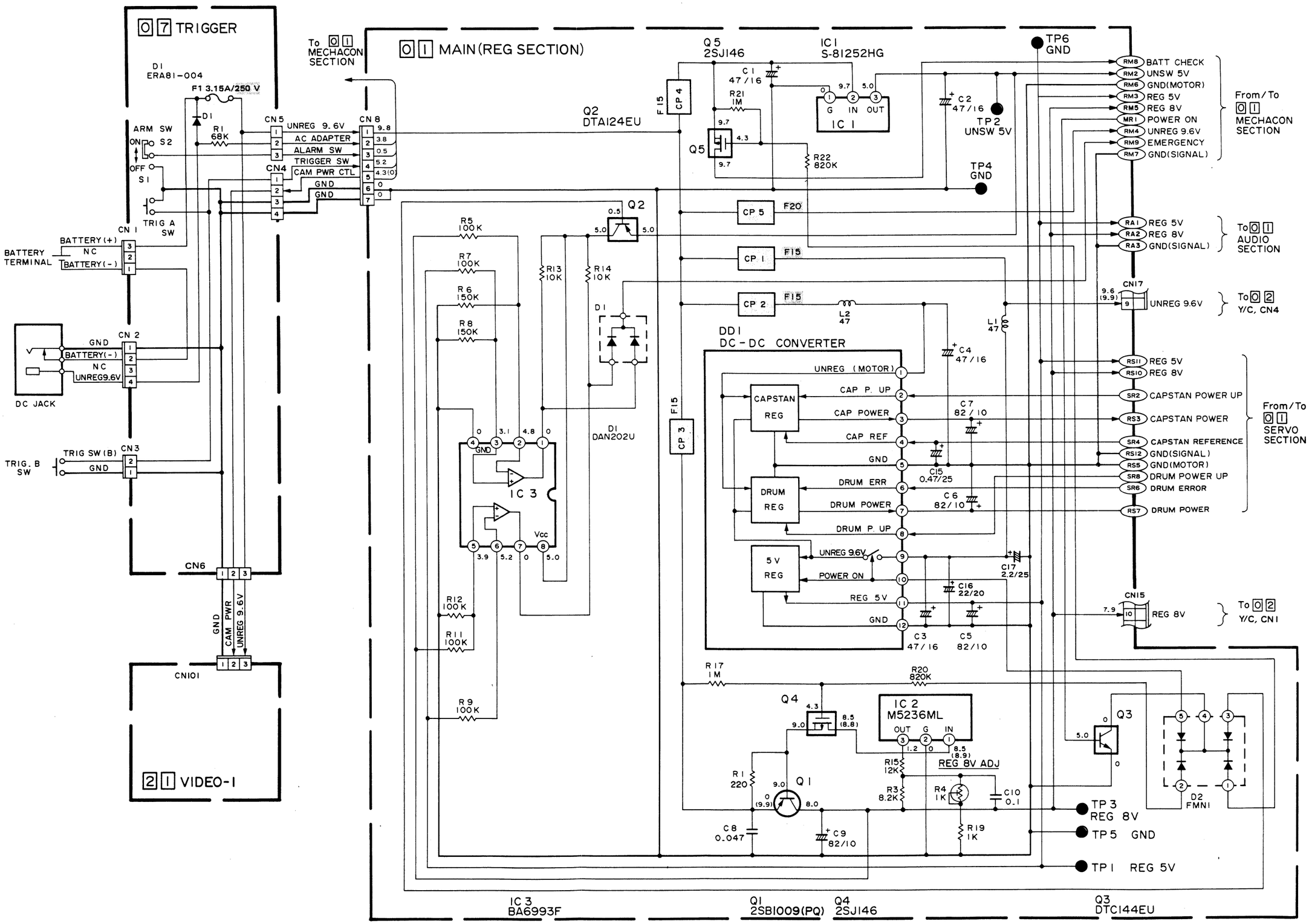
Gesamtverdrahtungsplan - Overall wiring diagram



· Overall wiring diagram



Stromversorgung - Regulator



Stromversorgung - Regulator

From/To 0 1 MECHACON SECTION

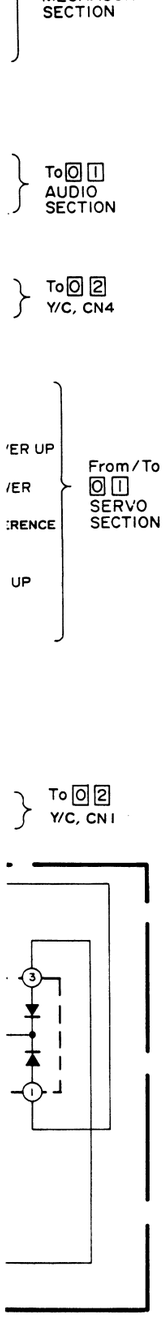
To 0 1 AUDIO SECTION

To 0 2 Y/C, CN4

'ER UP
/ER
:RENCE
UP

From/To 0 1 SERVO SECTION

To 0 2 Y/C, CN1



0 1 SERVO

CN10 — CTL HEAD (+) / CTL HEAD (-) / AUDIO GND / AUDIO HEAD (+) / AUDIO HEAD (-) / A/E HEAD (-) / A/E HEAD (+) → AUDIO SECTION

IC103 M52410FP

TP108 P.B CTL PULSE

D104 RB451F

C151 100P

C150 C149 1 C148 5600P

R177 10K C146 0.1 R176 470K R175 4.7K R178 0R0

C145 1000P

REC/PB SW — REC — PB — PB CTL PULSE AMP — CTL PULSE REC AMP — WAVEFORM SHAPER — REC:ON — PB:ON

TRAP101 AFZ72F37.5A3 — 37.5Hz TRAP

IC105 BA226F

C166 — C165 0.033

R164 1K

B110 R190 680K R191 2.2K

IC106 NJM2904E — CAP TRAP I

C205 1000P C207 1000P C206 1000P C208 1000P

R254 2.7K R255 51K R257 22K R258 68K

C201 1000P C202 1000P C203 1000P C204 1000P

R231 100K R232 7.5K R233 7.5K R234 100K

IC104 VC5026G — 3# LOGIC — HALL AMP — MODE AMP

Q112~Q114 2SB798 — Q112 Q113 Q114

R184 10K R185 10K R186 10K R182 68K R183 18K

B104 B105 B106 — C157 C158 C159 33/10

C155 0.01 C156 0.01

C162 C161 C163 0.022

CN14 — From/To CAP MOTOR
COIL 2 / HG 1(-) / COIL 3 / HG 2(+) / HG BIAS(+) / HG BIAS(-) / HG 2(-) / HG 1(+) / HG 3(-) / COIL 1 / HG 3(+) / FG 1 / MR 5V / FG 2 / MR GND

R180 56 R181 56

WAVEFORM SHAPER — CAPSTAN PG AMP — CYLINDER PG AMP — CYLINDER PG LPF

TP107 CAP FG — D103 MA141WK — Q111 2SK665 — R172 10K R171 1M C142 0.1 C141 10P R174 15K R173 47K R170 47K C140 0.1 C143 1000P C144 470P

R168 22K R169 10K

C124 1000P C123 1000P — R140 R146 180K 150K — R141 R140 180K 150K

C136 1 — SG GND / REG 5V / REG 8V

REG SECTION
GND (SIGNAL) / REG 5V / REG 8V
TO REG SECTION
CAP POWER UP / CAP POWER / CAP REF / GND (MOTOR) / DRUM ERROR / DRUM POWER / DRUM POWER UP

IC102 M52434FP

TP105 DRUM P/D

D105 MA141WK — R196 47K — D105 — R195 47K

R131 47K — R153 330K — R152 10K — R150 10K — R151 470 — R130 47K — R122 10K — R128 1K — R143 820K — R139 1M

C122 10/16 NP — C117 10/16 NP

C106 — C105 270 C104 270 — C107 10/16 — C108 — C109 0.01 C110 5600P — C111 0.01 C112 1000P

X1

Q103 2SC4081

Q104~Q106 DTC144EU — Q105 — Q106 — Q104

R155 10K

C121 0.22 — R145 82K — C120 2200P — R146 270K — C130 0.1 — C131 0.022 — R156 220K — R157 470K

R158 560 — R159 560

C133 C134 C135 0.022 — C132 3300P

AUDIO SECTION

CN4 — From/To 0 3 DRUM MDA CN1
FE HEAD / FE HEAD / END LED GND / MOTOR GND / END LED / GND / END SENS / CASSETTE SW / DRUM ON / DEW SENS / DRUM FG / DRUM P ERR / DRUM FG / DRUM REF / REG 5V / DRUM POWER

END S LED GND

CN3 — From/To 0 4 PRE/REC AMP CN3
REG 5V / GND / TURN SP / TURN LP / H.FF / DRUM FF / GND / AV REC MUTE / REC 8V / SW-C / SW-A / SW-D / SW-B / NC

CN8 — SW A / GND / D.FF / TP FW — NC

CN13 — GND / TEST 0 / TEST 1 / TRACKING P SET / LOAD P.UP / CTL.P / H.CTL.P / CHECK / UNREG 9.6V — NC

TP101 SW A

Q107 Q108 Q109 Q110

TP111 DRUM FF

UNREG (OP5)

MECHACON SECTION
OTHER / SEARCH (H) / SERVO MODE 1 / SERVO MODE A / SP(L)/LP(H) / V PULSE ON (H) / PAUSE (H) / REC CTL DUTY / CAP M (H) /S (L) / CAP M.REF / CAPSTAN REV (L) / CAPSTAN FWD (L) / CTL PULSE / DRUM F.F

IC101 BU3767K — SEARCH/NORM — CLOCK — DRUM PHASE DET — DRUM FV CONV — CAPSTAN PHASE DET — CAPSTAN FV CONV — REC CTL 65%(H) 50%(L) — REC CTL DUTY SELECT — REFERENCE COUNTER — CAP REF COUNTER — DRUM FG COUNTER — PULSE GEN — TRACKING MMV — REV/NORM — OVER LAP1 — OVER LAP2 — PB SW MMV — V-SYNC SEP — REC:ON — NORM SEARCH — DELAY MMV — V.PULSE CNT

TP110 TEST

Q115 FMG2

TP104 CAP APC — CTL P — CTL R LOGIC — REG 8V

C115 2200P — C116 0.1 — R138 82K — R135 6.8K — R136 15K — R137 22K — C137 1

R123 27K — Q102 — R101 50K(B) — R124 1K

LP CTL DLY TP106

STD PRESET — R102 1K — R106 470K — C102 0.068 — C101 0.068 — R107 68K — R163 10K — R164 1K — R195 10K

TRACKING PRESET — TRACKING

(DISCHARGE PULSE)

R108 PB SW POINT

D102 DA204U — Q101 — R110 12K R109 33K C153 3900P R126 1K R125 1K

PAUSE / CAP CTL / D.FF / MODE A / CAP M.CTL.REF / C.FG / P.B.CTL / MODE 1 / CAP REV: L / REC CTL DUTY / SP: L

CN15 — GND / C.SYNC / REMOTE SW / V.PULSE / NC / REG 8V / AUDIO GND / V.PULSE ON / AUDIO OUT / REMOTE / NC / fsc / AUDIO IN / NC — REG SECTION

From/To 0 2 Y/C CN1

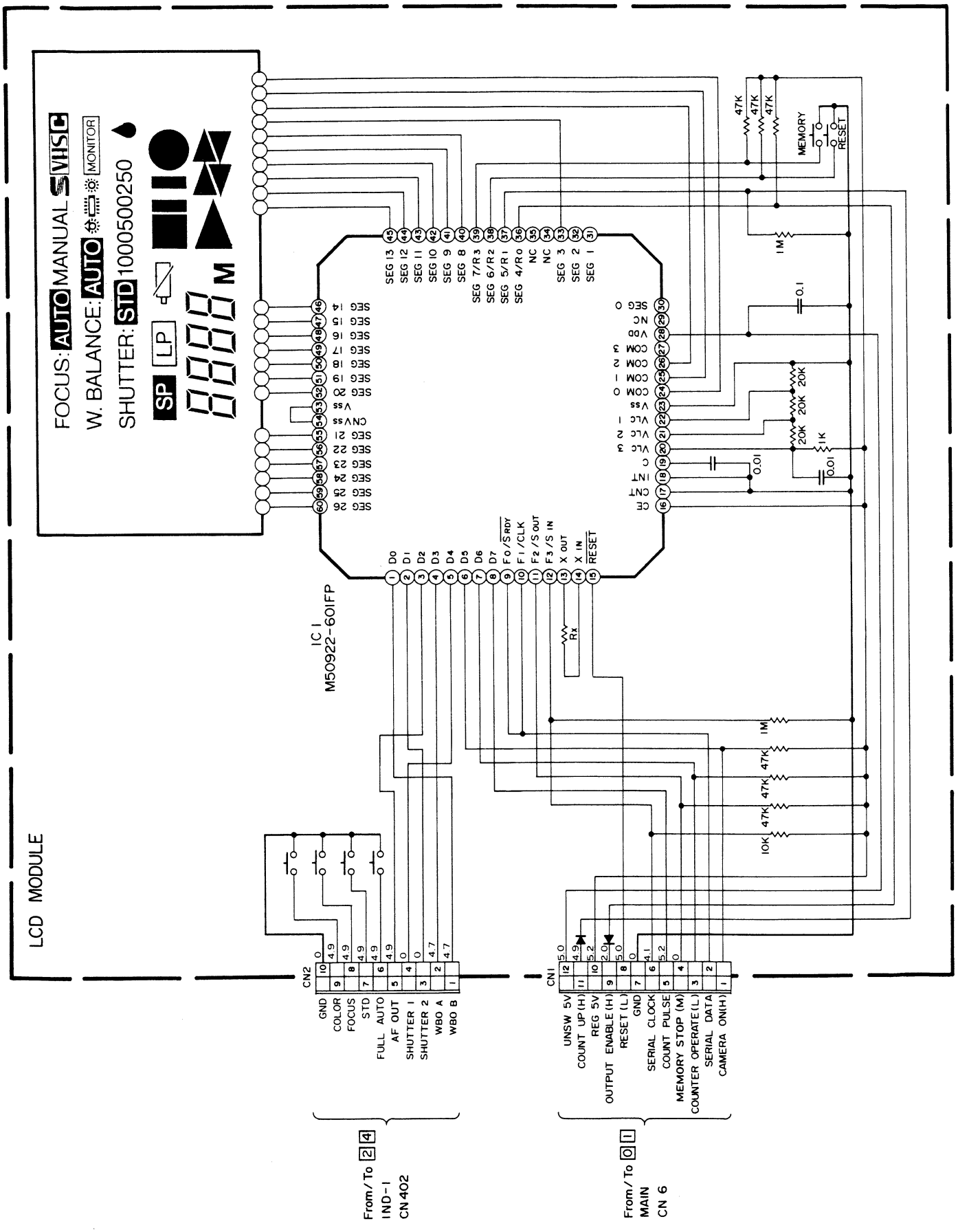
CN17 — GND / V.REC (L) / EDIT (L) / V.P.B (L) / V.DET / REG 5V / V.ALL MUTE (H) / UNREG 9.6V / GND / NC — From/To 0 2 Y/C CN4 — UNREG (CP1)

TP109 TP FW

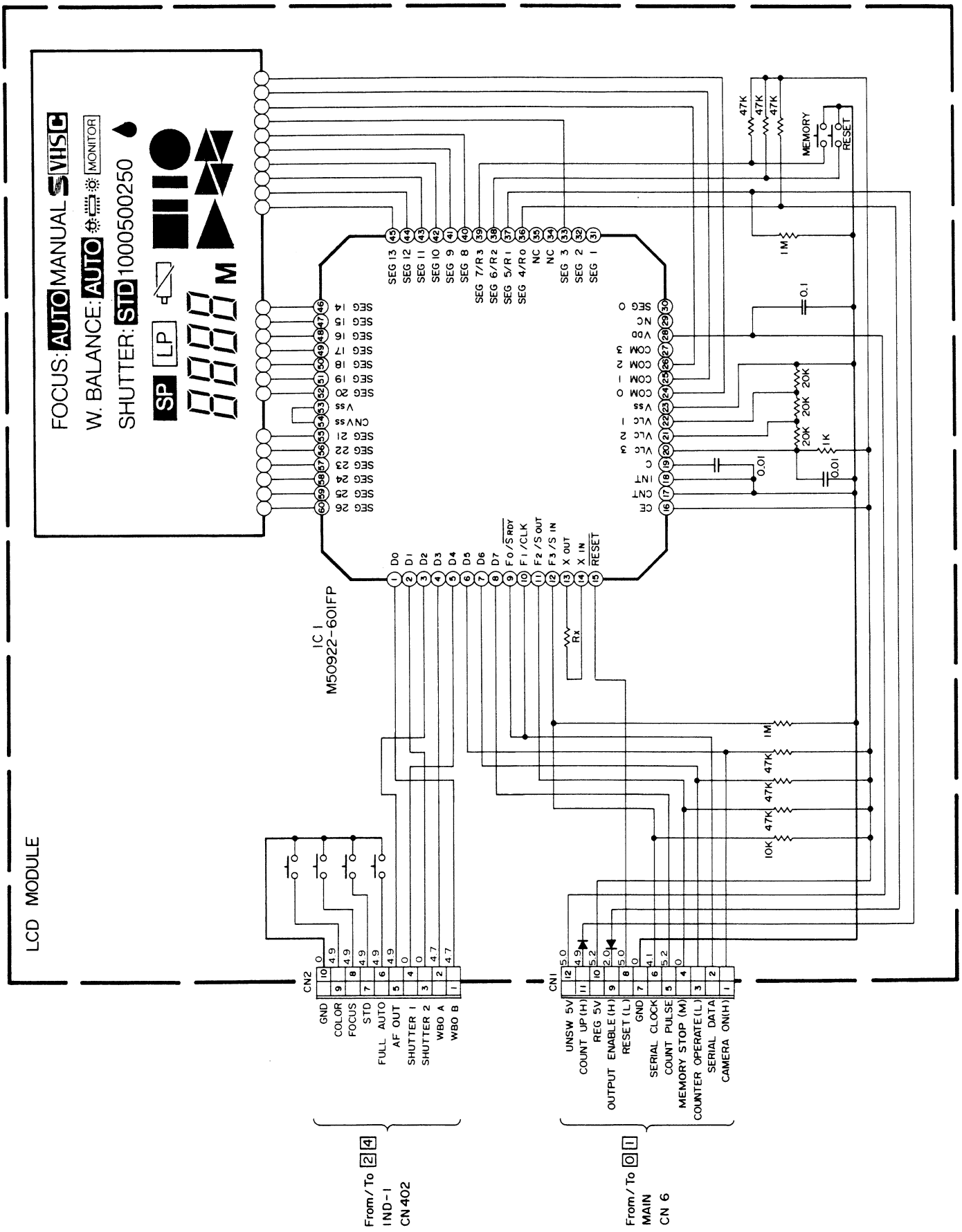
CN16 — TP FW / NC / V LP PB (L) / SP (L) / V LP BPB (L) / V.PAUSE (H) / D.FF / SV (H) — From/To 0 2 Y/C CN3

Q101 DTA124EU — Q102 2SK665 — Q107~Q110 DTC144EU

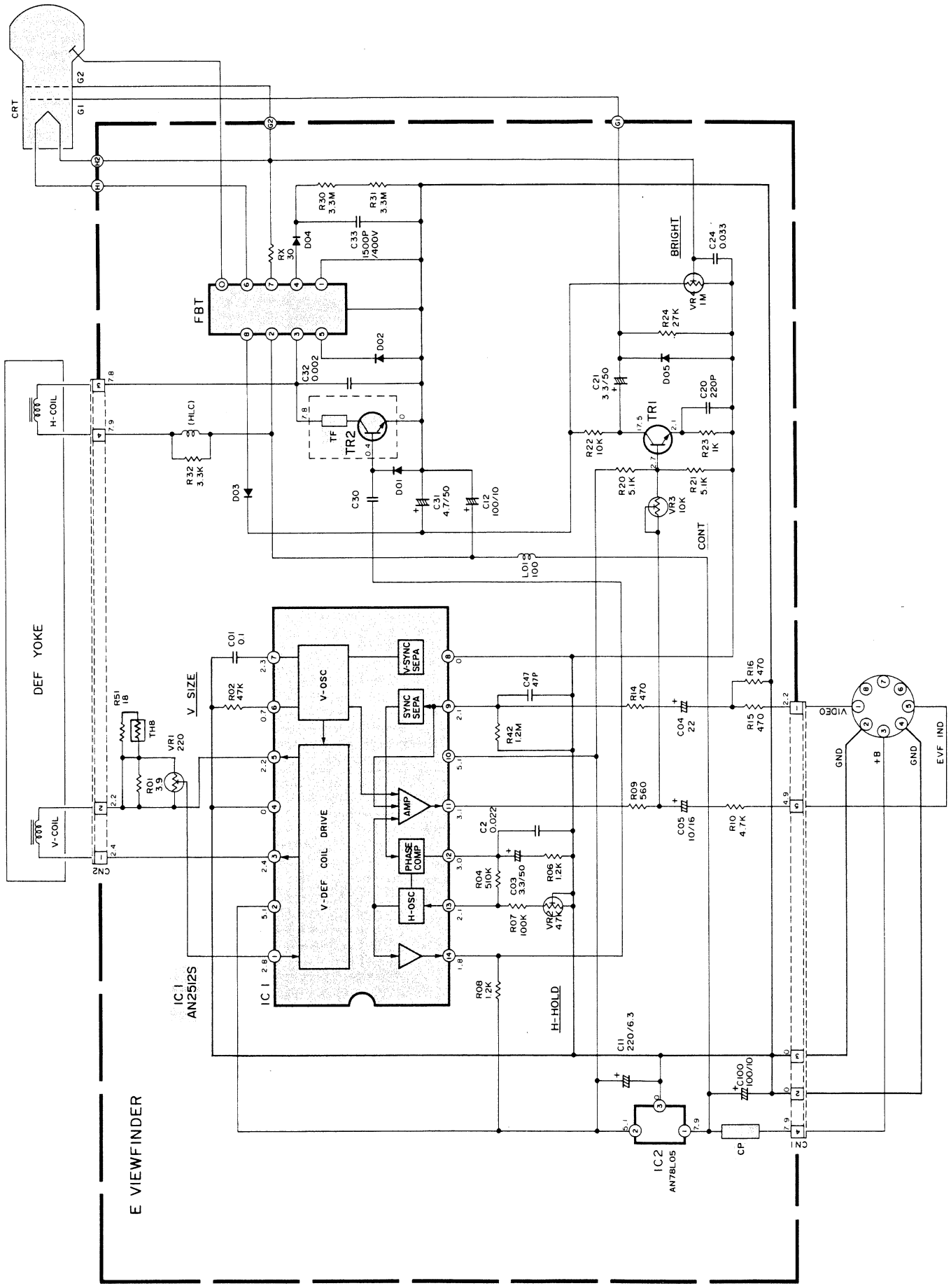
Servo - Servo



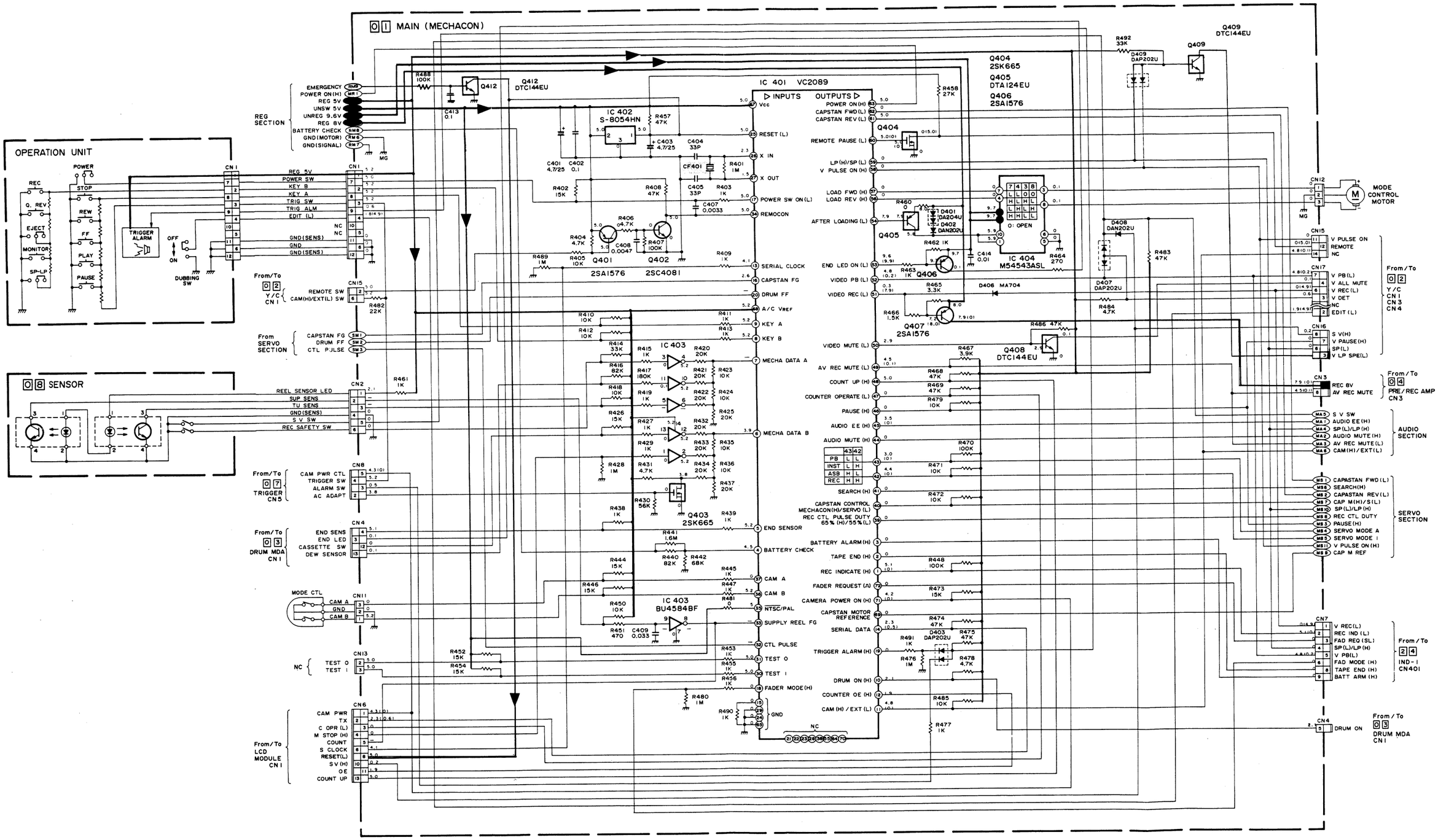
LCD- Anzeigemodul - LCD module



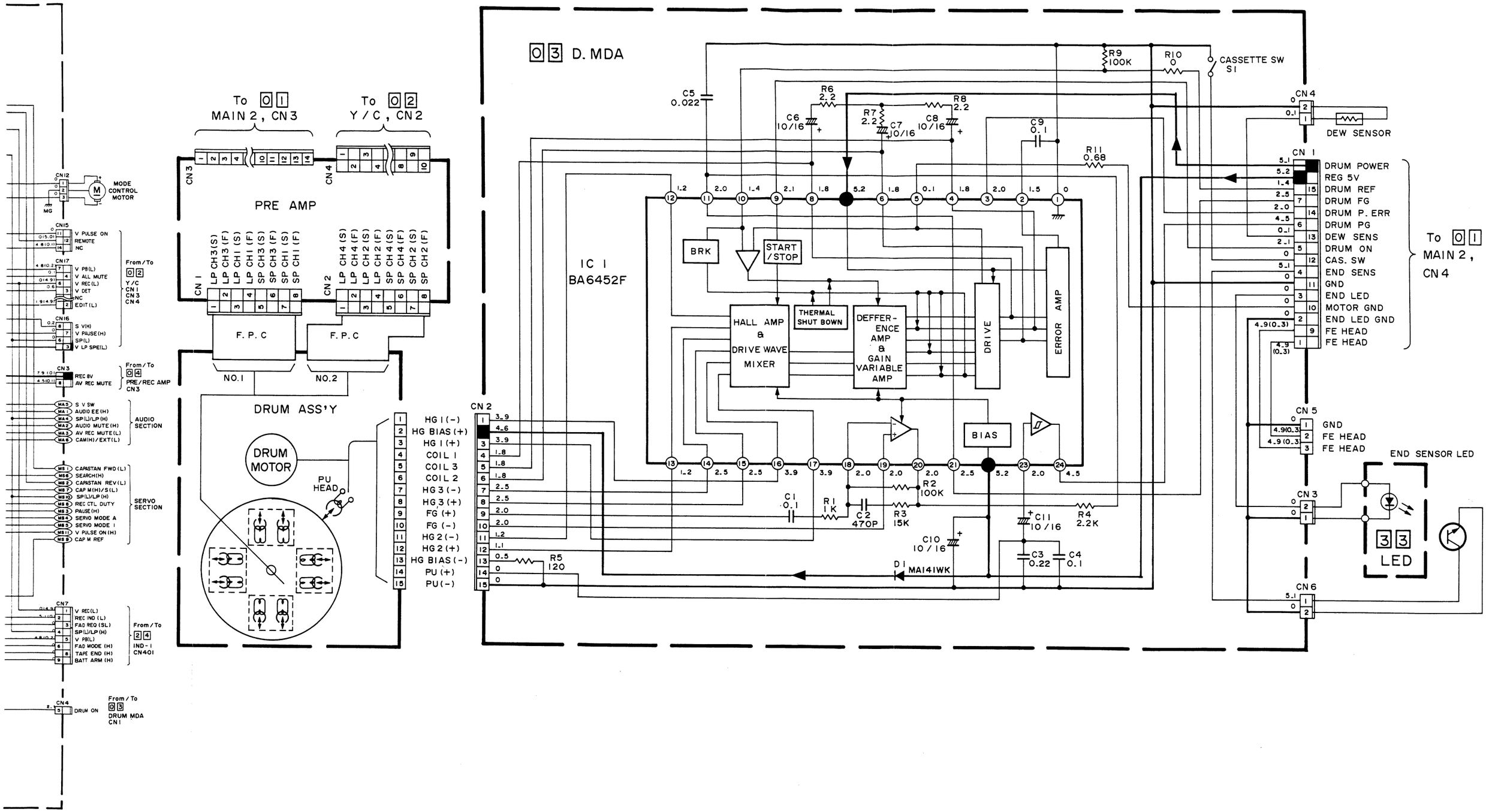
LCD- Anzeigemodul - LCD module



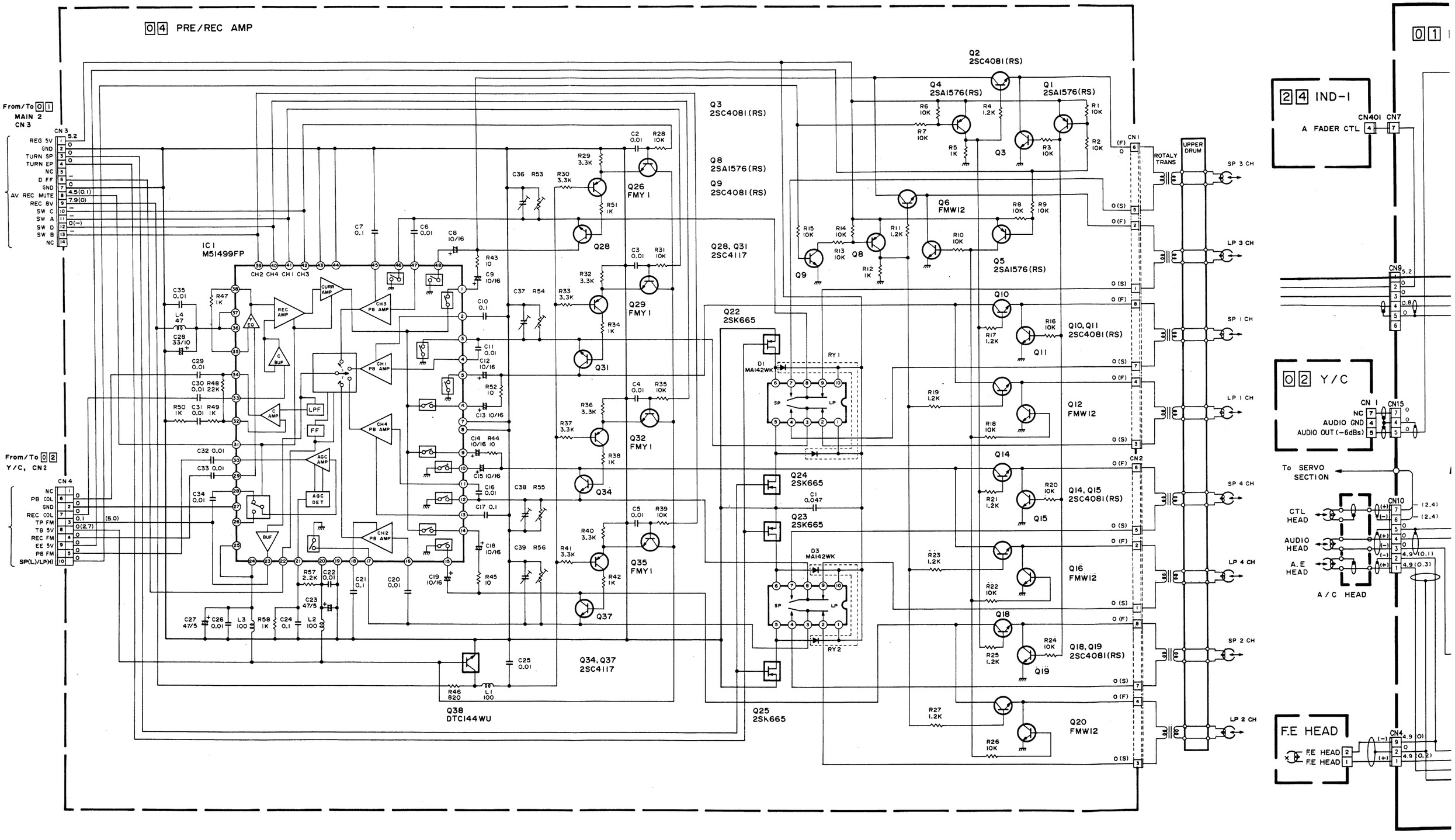
Monitor - Electronic view finder



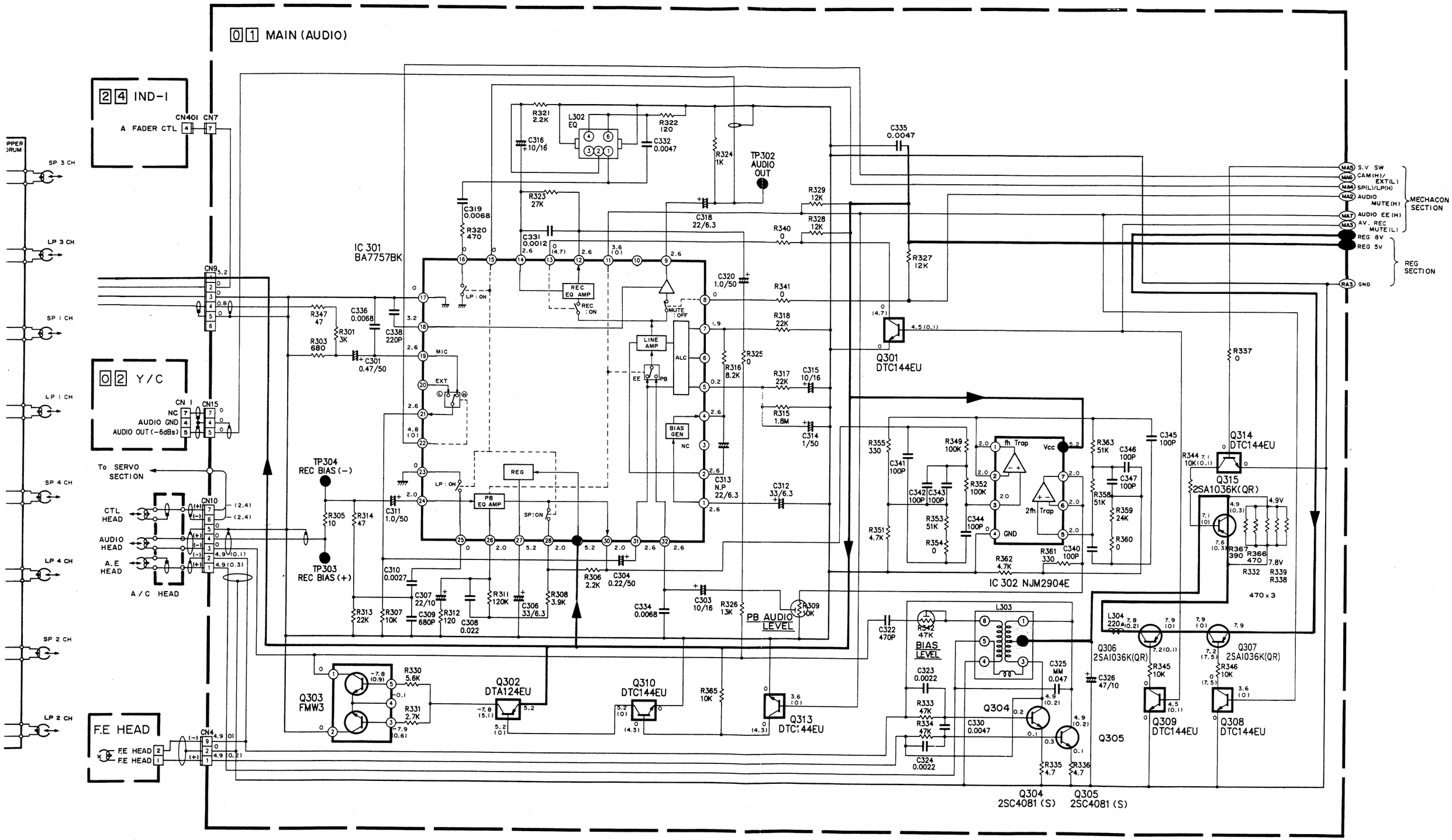
Steuerlogik - Mechacon



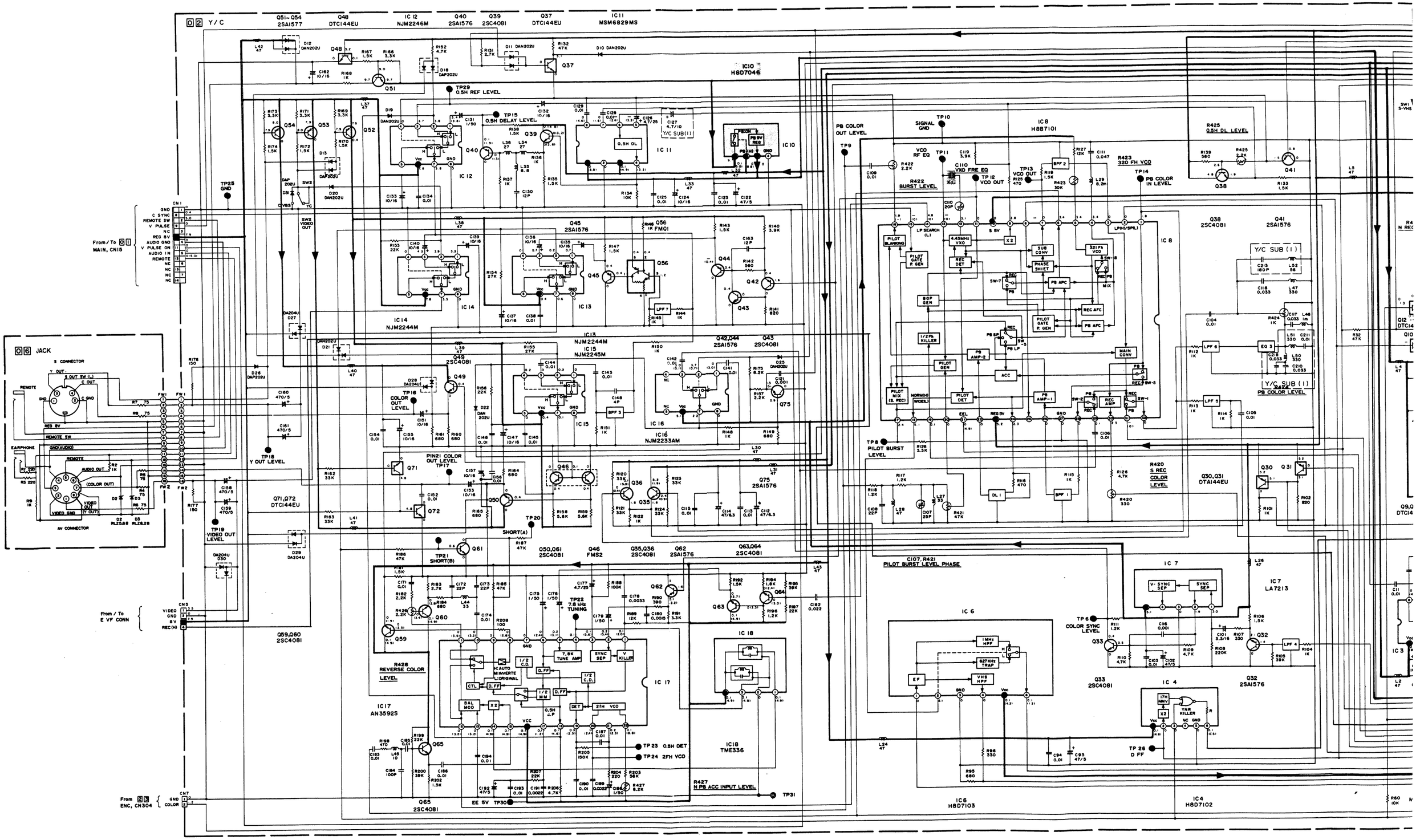
Trommelservo MDA - Drum MDA



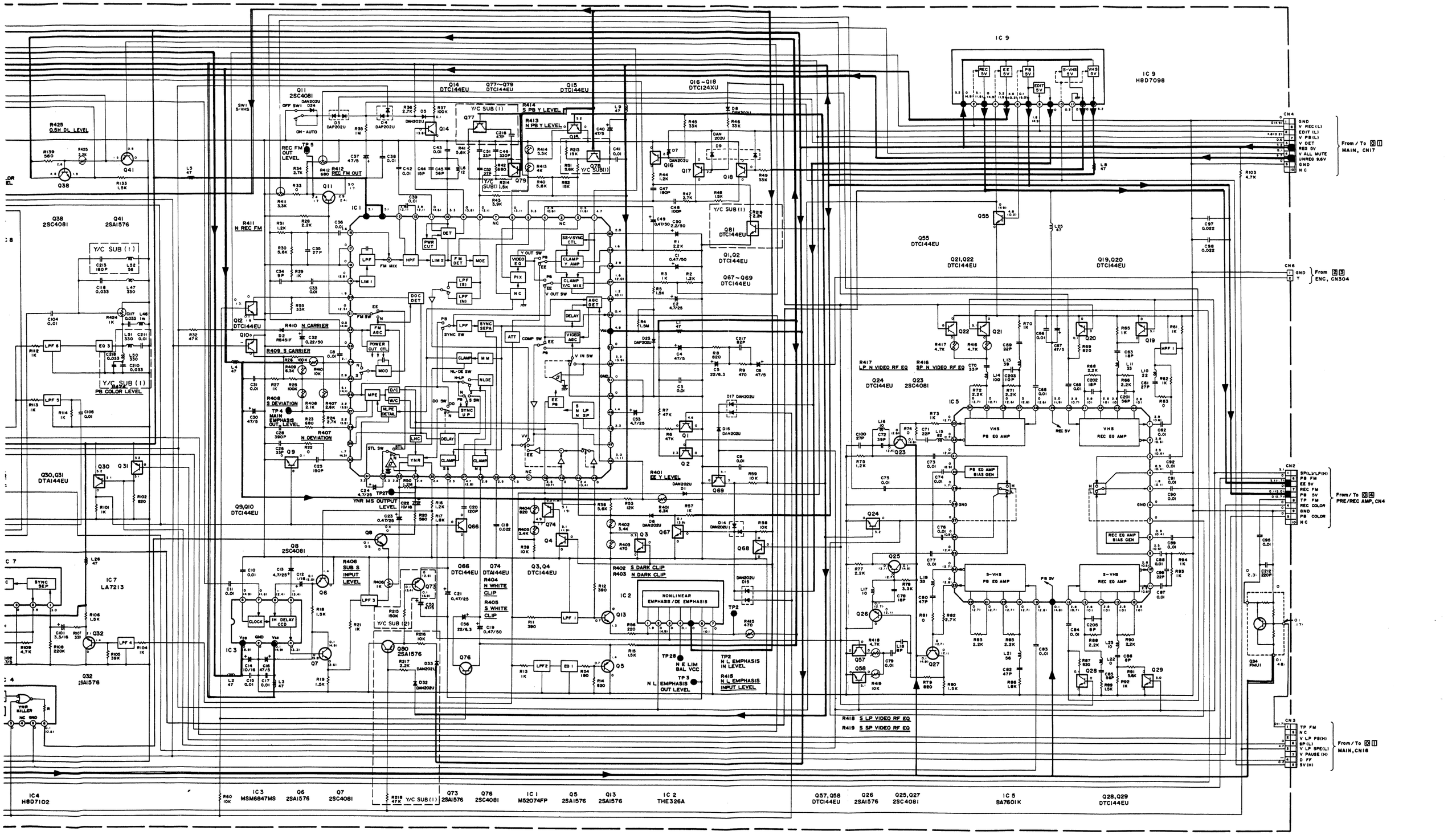
Vor- und Aufnahmeverstärker - Pre- and record amplifier


01 MAIN (AUDIO)
24 IND-I
CN401 CN7
A FADER CTL
02 Y/C
CN1 CN15
NC
AUDIO GND
AUDIO OUT (-6dBs)
To SERVO SECTION
CN10
CTL HEAD
AUDIO HEAD
A.E HEAD
A/C HEAD
F.E HEAD
CN4
F.E HEAD
SP 3 CH
LP 3 CH
SP 1 CH
LP 1 CH
SP 4 CH
LP 4 CH
SP 2 CH
LP 2 CH
IC 301
BA7757BK
TP304
REC BIAS (-)
TP303
REC BIAS (+)
TP302
AUDIO OUT
REC EQ AMP
REC : ON
LP : ON
PB EQ AMP
SP : ON
REG
LINE AMP
ALC
PB
EE
BIAS GEN
NC
MIC
EXT
MUTE : OFF
R321 2.2K
L302 EQ
R322 120
C316 +10/16
C332 0.0047
R324 1K
C335 0.0047
R323 27K
C319 0.0068
R320 470
C318 22/6.3
C331 0.0012
R329 12K
R328 12K
R340 0
R327 12K
C320 1.0/50
R341 0
R318 22K
R325 0
R316 8.2K
R317 22K
C315 10/16
R315 1.8M
C314 1/50
C313 N.P 22/6.3
C312 33/6.3
C311 1.0/50
C310 0.0027
C307 22/10
C309 680P
R312 120
C308 0.022
R311 120K
C306 33/6.3
R308 3.9K
R306 2.2K
C304 0.22/50
C303 10/16
R326 13K
R309 10K
PB AUDIO LEVEL
C334 0.0068
R313 22K
R307 10K
R305 10
R314 47
R347 47
R303 680
R301 3K
C336 0.0068
C338 220P
C301 0.47/50
Q301 DTC144EU
Q302 DTA124EU
Q303 FMW3
Q310 DTC144EU
Q313 DTC144EU
R330 5.6K
R331 2.7K
R365 10K
R355 330
C341 100P
R349 100K
R352 100K
R353 51K
R354 0
C342 100P
C343 100P
C344 100P
R351 4.7K
fh Trap
2fh Trap
Vcc
GND
R363 51K
C346 100P
C347 100P
R358 51K
R359 24K
R360 0
C345 100P
R361 330
C340 100P
R362 4.7K
IC 302 NJM2904E
R337 0
Q314 DTC144EU
R344 10K
Q315 2SA1036K(QR)
R367 390
R366 470
R332
R339
R338
470 x 3
L303
R342 47K
BIAS LEVEL
C322 470P
C323 0.0022
R333 47K
R334 47K
C324 0.0022
C330 0.0047
C325 MM 0.047
C326 47/10
Q304
Q305
R335 4.7
R336 4.7
Q304 2SC4081 (S)
Q305 2SC4081 (S)
L304 220
Q306 2SA1036K(QR)
Q307 2SA1036K(QR)
R345 10K
R346 10K
Q309 DTC144EU
Q308 DTC144EU
MA5 S.V SW
MA6 CAM(H)/EXT(L)
MA4 SP(L)/LP(H)
MA2 AUDIO MUTE(H)
MA7 AUDIO EE(H)
MA3 4V. REC MUTE(L)
REG 8V
REG 5V
RA3 GND
MECHACON SECTION
REG SECTION

Audio - Audio



Video (Y/C)- Video (Y/C)



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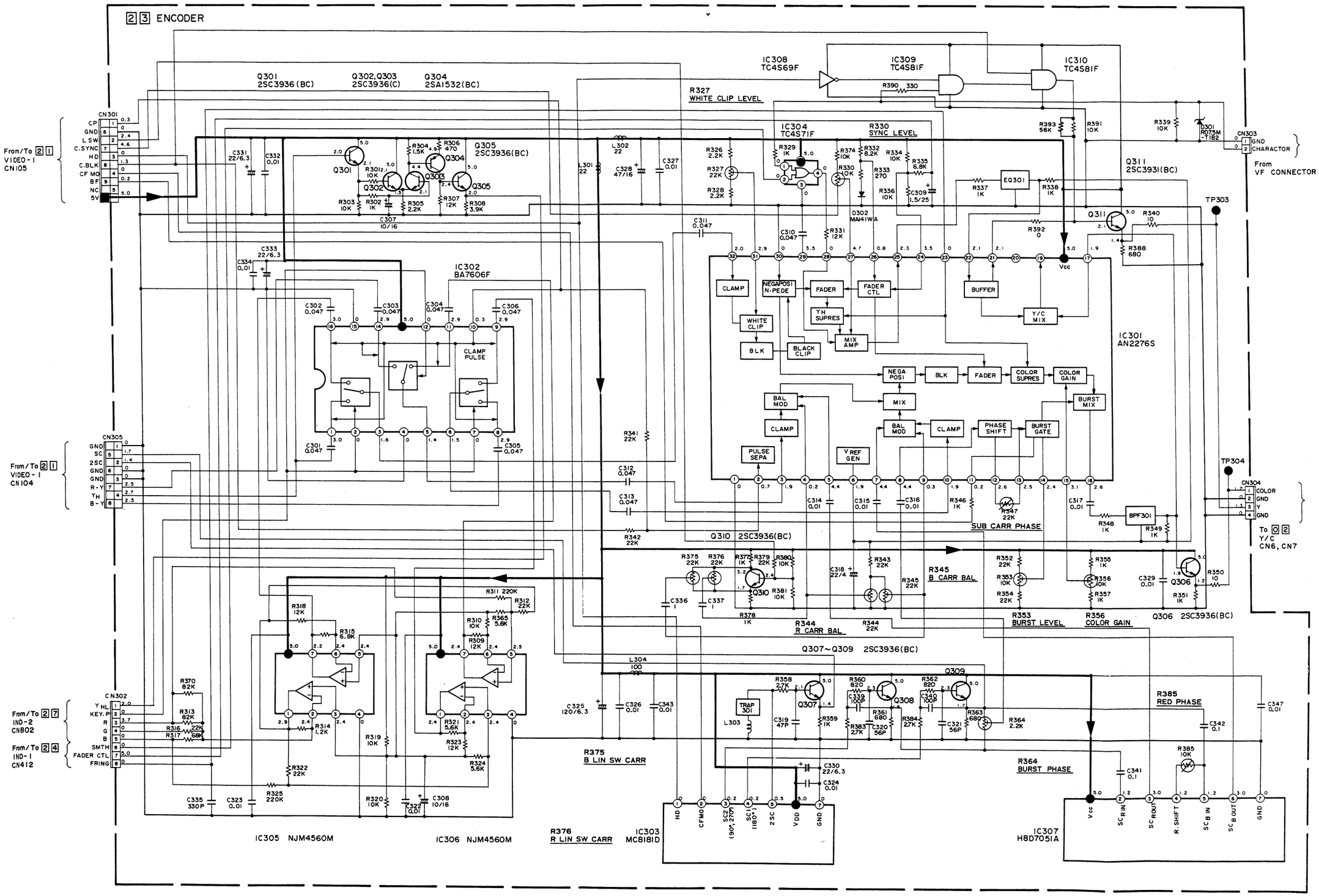
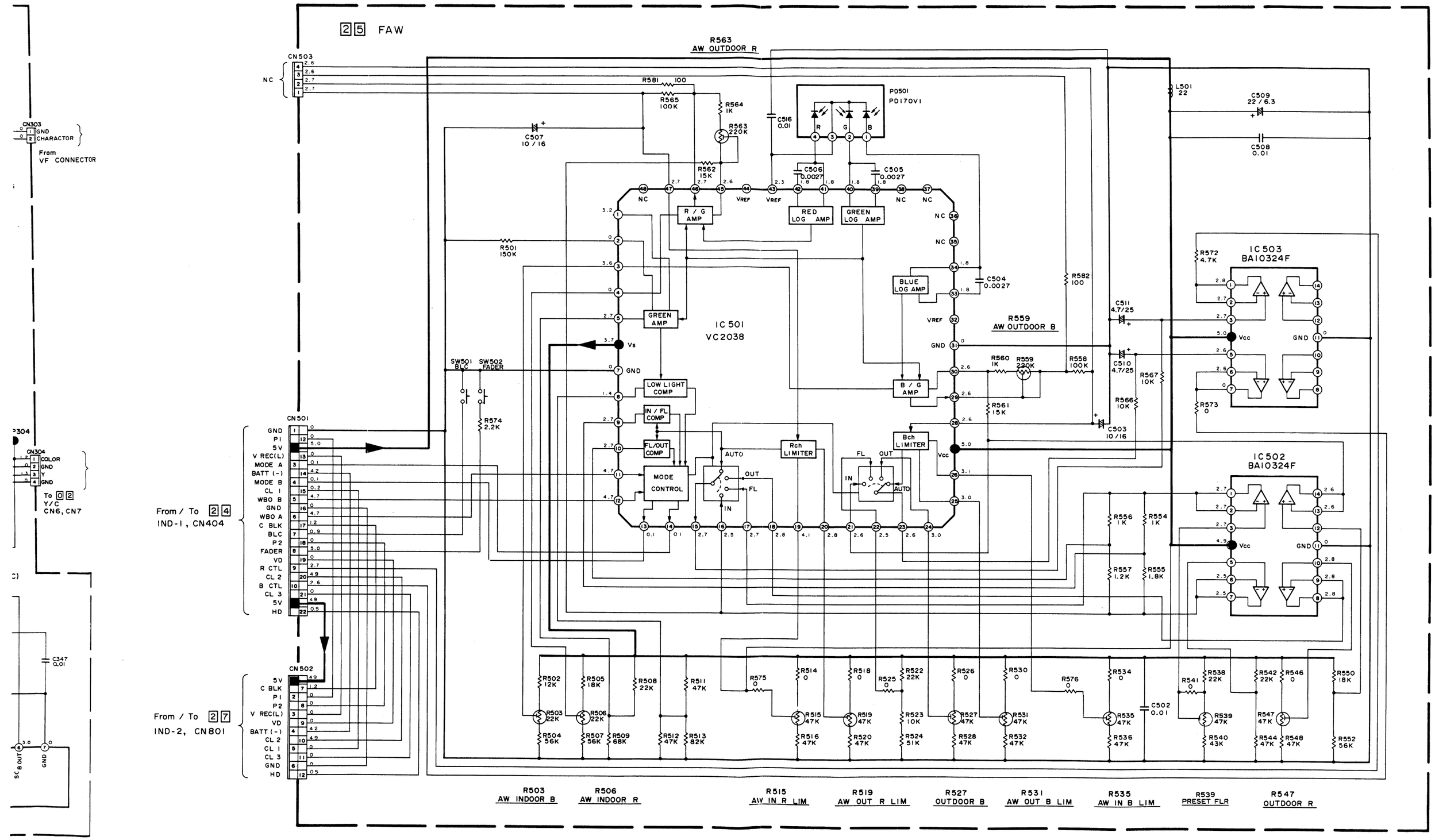
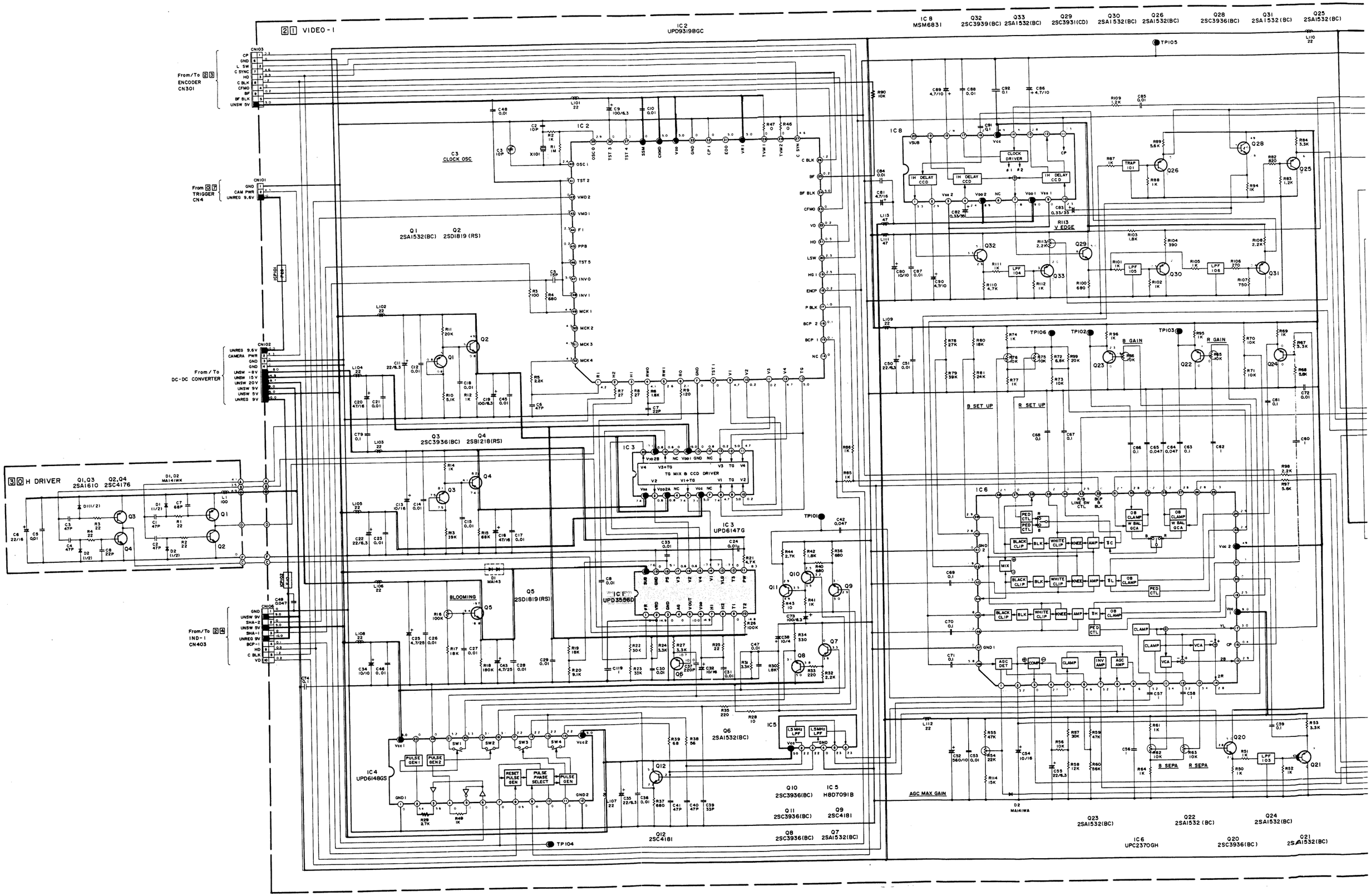


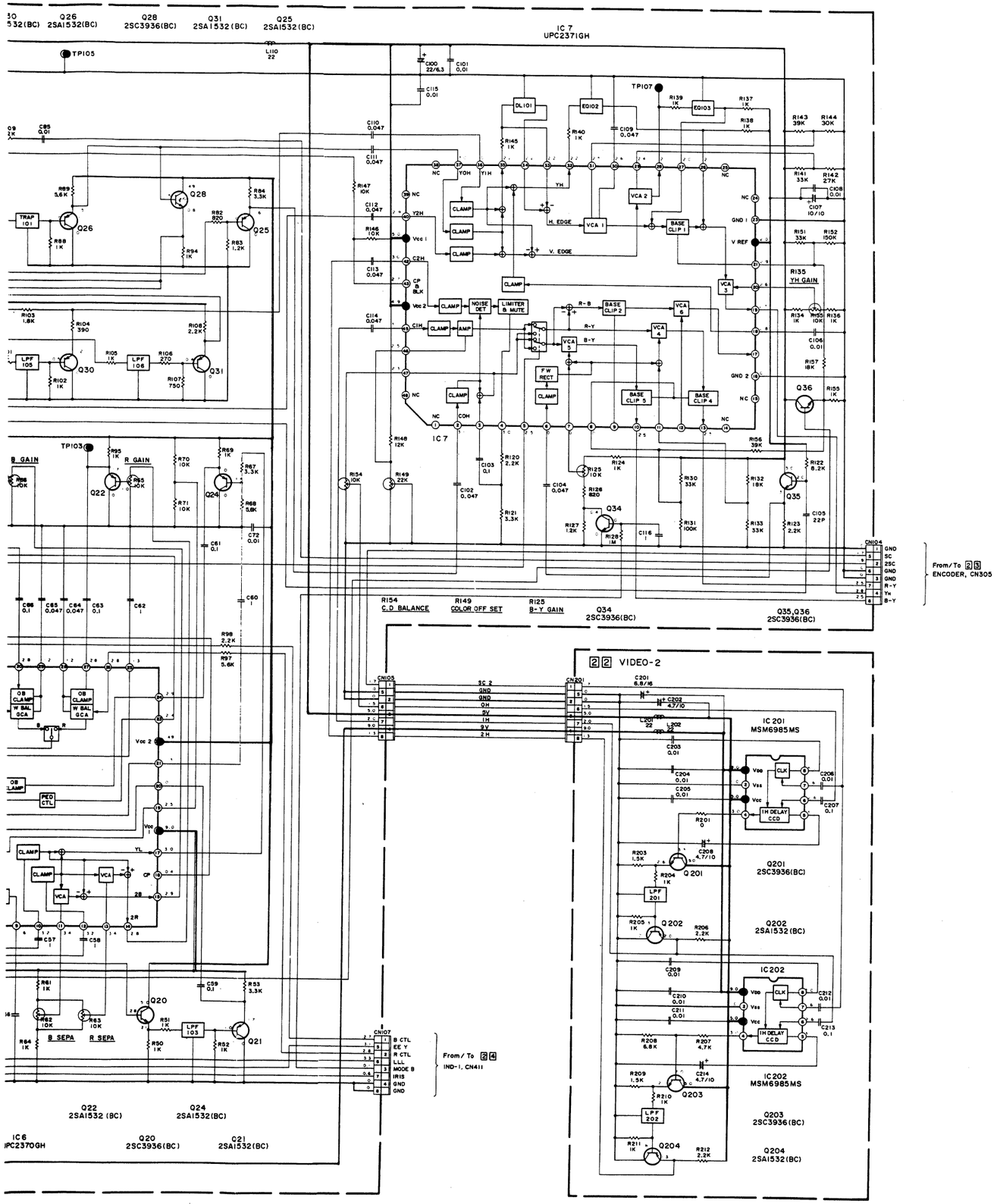
Taktgeber - Encoder



Automatischer Weißabgleich - FAW



Video 1 und 2 (Camera) - Video 1 and 2 (camera)



TRANSISTOR		DIODE	
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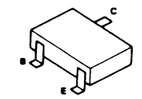	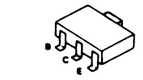	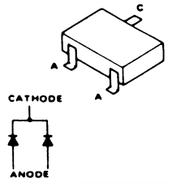	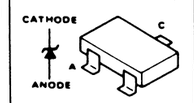
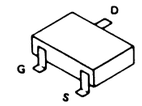	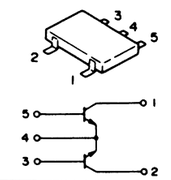	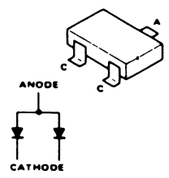	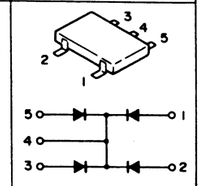
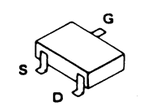	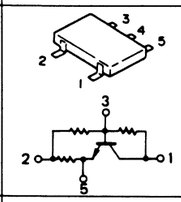	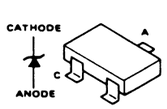	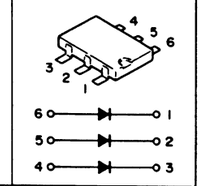
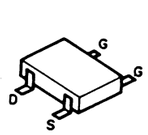		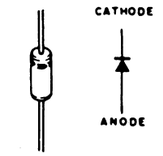	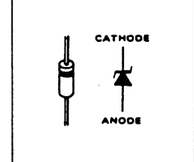
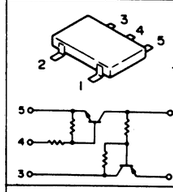		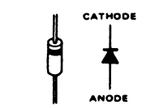	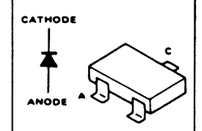
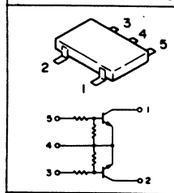		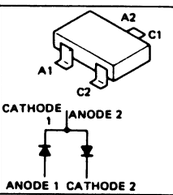	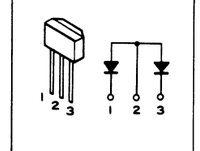
		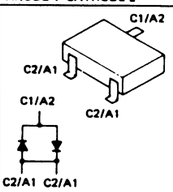	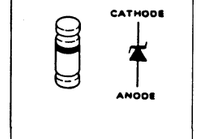
		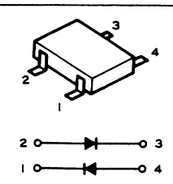	

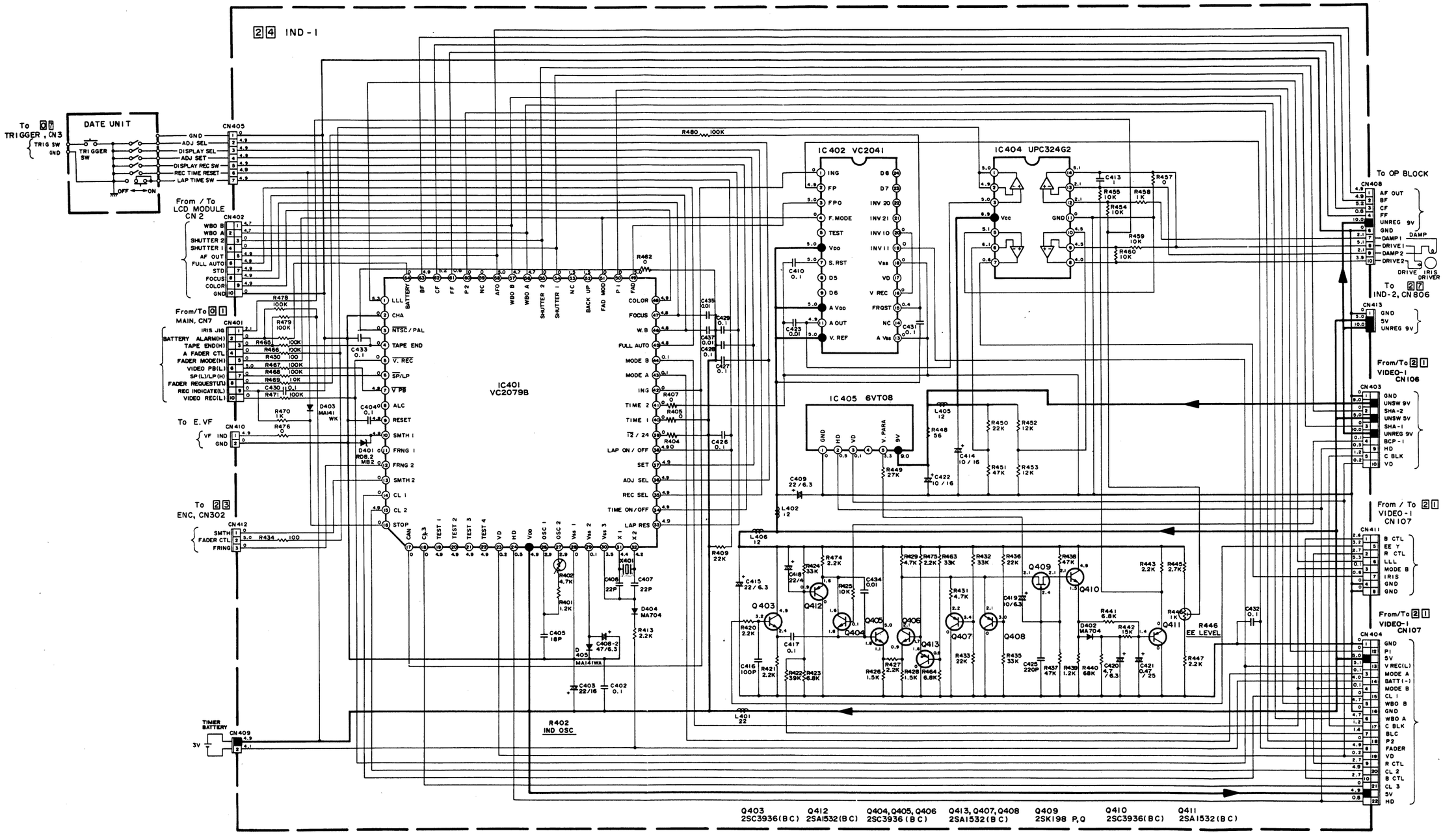

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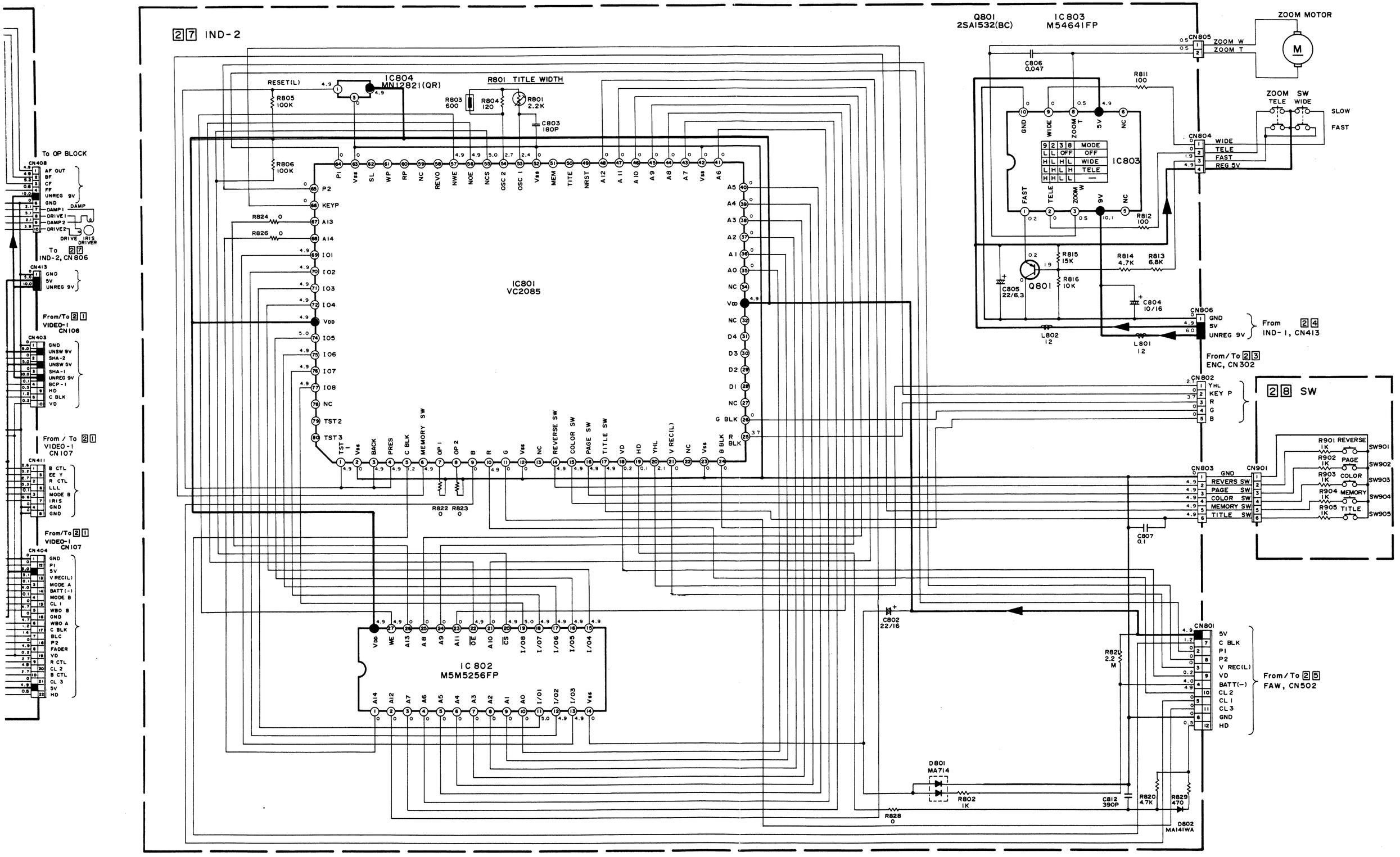

Anzeige Steuerung 1 und 2 - IND 1 and 2